OIPE
APR 0 5 2004
JC60
PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | | |
|---|---|---|
| Applicant: | Steven V. Ruel | |
| Serial No.: | 10/781,967 | Attorneys' Ref. P214523 |
| Filing Date: | 02/18/2004 | Art Unit: 3637 |
| Title: | SYSTEMS AND METHODS FOR CONNECTING REINFORCING MESH TO WALL PANELS | |

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**INFORMATION DISCLOSURE STATEMENT**

Sir:

In accordance with 37 CFR §1.56, the Applicant respectfully submits this Information Disclosure Statement to call to the attention of the Examiner the references listed on the attached Form PTO/SB/08A for consideration in the prosecution of the above-referenced application for U.S. patent. These references are discussed below.

Due to the number of cited references, copies of these references are not being attached hereto but can be provided at the Examiner's request.

It is believed that no fee or charge is due at this time to maintain the application in full force and effect. However, if any such fee or charge is due, please charge this to Deposit Account No. 50-2099.

**REMARKS**

U.S. Patent No. 4,324,508 to Hilfiker et al. discloses a retaining wall system in which rods are inserted through folded ends of reinforcing mats and behind pin members extending between adjacent edges of wall panels. The rods engage the pin members to prevent movement of the wall panels relative to the reinforcing mats. The Applicants believe that neither the pin members nor the reinforcing mats of the Hilfiker et al. '508 patent can be practically manufactured with sufficient strength to stabilize the wall under the lateral loads the system must bear. The system described in the Hilfiker '508 patent has not, to the Applicants' knowledge, met with significant commercial success, most likely because this system as designed cannot meet applicable AASHTO specifications.

U.S. Patent No. 4,329,089 to Hilfiker et al. discloses a wall system in which anchor members are folded over and inserted through grid work sections forming the wall. Pins are inserted through loops formed by the folded anchor members to prevent withdrawal of the anchor members back through the grid work sections. As with the system disclosed in the Hilfiker et al. '508 patent, the system of the Hilfiker '089 patent would not, as designed, meet AASHTO specifications because the system would not be stable under the anticipated loads.

U.S. Patent No. 5,494,379 to Anderson et al. discloses a wire mesh retaining wall that employs handle bar connectors to attach buried stabilizing members to wire mesh panels. The handle bar connectors are passed through loops formed in the stabilizing members. The loads to which the retaining wall may be subjected may straighten out the loops in the stabilizing members, thus rendering the retaining wall described in the Anderson et. al. patent unstable.

U.S. Patent No. 4,505,621 to Hilfiker et al. discloses a retaining wall system in which reinforcing mats are comprised of longitudinal wires and cross wires. The longitudinal wires are bent to form floor and face sections and kinked in the face section. The floor sections are buried with a cross wire of one mat engaging longitudinal wires of an adjacent mat such that the face sections form the reinforcing wall. In this system, the retaining mats are integrally formed with the face sections.

U.S. Patent Nos. 4,616,959 and 4,661,023 to Hilfiker discloses wall systems in which rods are received within grooves in concrete members forming the wall to connect soil reinforcing mats to the concrete members. In the '959 patent, the soil reinforcing mats are folded over the rods. In the '023 patent, the mats are connected directly to the rods.

U.S. Patent No. 5,484,235 to Hilfiker discloses a wall system in which the soil reinforcing mat is directly received within grooves formed in upper and/or lower edges of the concrete blocks. When one block is stacked on top of another, the mats are trapped within the grooves.

U.S. Patent No. 4,856,939 to Hilfiker discloses a wall system in which the soil reinforcing mat is in the form of grids that interlock with trays that define the wall. The trays are inserted through the grids to form the connection therebetween.

U.S. Patent Nos. 4,260,296 and 4,266,890 to Hilfiker disclose wall systems in which vertical pins extend through holes in the wall panels and through plates connected to buried anchor rods; the buried rods stabilize the wall panels.

U.S. Patent No. 3,992,864 to Hilfiker discloses a wall system in which flanges are threaded onto stretchers extending between a wall panel and a buried deadman.

U.S. Patent Nos. 4,343,572, 4,643,618, and 4,391,557 to Hilfiker disclose wall systems in which the reinforcing wall is cast in place and not formed of precast concrete wall panels.

U.S. Patent No. 4,815,897 to Risi et al. is of general interest as background in that it shows the mesh being secured to the wall by inserting the mesh between adjacent vertical courses of the wall such that the weight of the upper course retains the mesh.

U.S. Patent Nos. 5,492,438, 4,993,879, 4,929,125, 4,834,584, and 4,154,554 to Hilfiker and 4,449,857 to Davis all disclose mechanically stabilized earth systems in which inserts are cast into wall panels and the anchor mesh is connected to these inserts.

U.S. Patent Nos. 5,259,704 to Orgorchock, 4,952,098 to Grayson, 4,961,673 to Pagano et al., 5,028,172 to Wilson et al., and 5,044,833 to Wilfiker [sic] all show systems for connecting mesh to panels that employ inserts cast into the panels that are adapted to be connected to the edge of the mesh.

U.S. Patent Nos. 5,076,735, 4,992,005, 4,117,686, and 4,068,482 to Hilfiker, 5,647,695 to Hilfiker et al., 4,529,174 to Pickett, 4,684,287 to Wojciechowski, 5,531,547 to Shimada, 5,158,399 to Flores, and 5,064,313 to Risi et al..

U.S. Patent No. 4,824,293 to Brown et al., shows a horizontal groove extending along the face of a concrete member into which an edge of a sheet of mesh is received. The edge is enlarged and may be inserted into the groove from side edge towards the other side edge but may not be removed from the groove in a direction along the axis of the mesh.

U.S. Patent No. 5,642,968 to Anderson et al. discloses a system in which mesh extends between vertically adjacent concrete members and pins are inserted through the members to retain the mesh. In the case of the Anderson et al. patent, the pins are vertically aligned and the concrete members are blocks rather than panels.

U.S. Patent No. 4,407,611 to Murray et al. shows discrete openings formed in the face of concrete panels in which the ends of bracing members extend. These holes are through holes in the edges of the panels and do not employ pins to secure the ends in the holes. Rather, the edges of adjacent panels overlap with laterally extending

portions of the retaining rods, and the ends of the retaining rods are threaded to receive connecting bolts.

U.S. Patent No. 5,722,799 to Hilfiker discloses the use of soil reinforcing mats and wire face mats to reinforce and define an exposed face of an earthen wall. The soil reinforcing mats and face mats are laid in courses or lifts and interconnected by pins that engage the soil reinforcing mats to the face mats and vertically adjacent face mats to each other.

U.S. Patent No. 5,511,910 to Scales discloses a system for forming an earth retaining wall comprising concrete face blocks and a number of sheet like retaining mats or grids. The retaining mats are buried within the earth and interconnected to the blocks using connector bars that are received within slots in the blocks. The connector bars comprise keys that extend up through openings in the retaining mat or grid to secure the retaining mat or grid to the face blocks.

U.S. 5,622,455 to Anderson et al. discloses an assembly for creating an earthen retaining wall in which handle bar connectors connect a cast and place a front wall to wire reinforcing mesh buried within the earth.

U.S. Patent No. 6,086,288 to Ruel et al. discloses a connecting system that allows reinforcing mesh to be attached to concrete or wire mesh panels forming the face of a reinforced earthen wall. This system employs pins that engage the reinforcing mesh and the wall panels to prevent movement of the wall panel relative to the reinforcing mesh.

U.S. Patent No. 6,050,748 to Anderson et al. discloses a variety of systems and methods for connecting anchor mesh to a wall element. For example, Fig. 61 depicts a pin that extends through portions of the anchor mesh and loop portions of inserts imbedded within and extending from the wall.

U.S. Patent No. 5,671,582 to Reay discloses a system for connecting floor panels to wall panels with a precast concrete multistory building.

U.S. Patent No. 979,285 to Gilligan discloses a system for connecting elongate concrete members such as pipe. Cast within the concrete members are inserts that define projecting loops at one end of the concrete member and imbedded in the other end of the concrete member. The concrete members are arranged such that the extending portion of one insert member extends into and between the key portion of another of the inserts. A locking member is inserted through the interconnected loops to prevent movement of the concrete members relative to each other.

U.S. Patent No. 3,631,682 to Hilfiker et al. discloses a reinforcing wall for an earthen wall in which concrete stretchers are arranged on headers forming the face of the wall and extend the earthen wall to stabilize the structure.

U.S. Patent No. 5,564,865 to Jansson discloses concrete blocks that are stacked on each other to form a wall, where a rod extends substantially vertically from the top most to the bottom most. Course anchor mesh is arranged such that an edge portion of there is between vertically spaced courses.

U.S. Patent No. 5,820,305 to Taylor et al. discloses the use of precast concrete blocks and rebar to create a form for a wall structure. Concrete is cast on one side of the blocks to form the finished wall.

U.S. Patent No. 6,402,435 to Lewis discloses a retaining wall system in which elongate members form the face of the wall and stack elongate concrete blocks form anchor portions on one side of the wall. Rebar extends through the blocks forming the anchor portions.

U.S. Patent No. 6,113,317 to Myers discloses a retaining wall system in which box-like blocks are stacked to form a wall. Anchor mesh is connected to the box members by a connecting member extending through a connecting void in the box members.

U.S. Patent No. 5,017,050 to Jaecklin discloses concrete blocks for forming a wall having trough portions on an exposed face thereof. Dirt backfilled against the wall passes through cavities to the troughs such that the dirt is accessible through gaps in the exposed face of the wall.

U.S. Pat. Nos. 5,749,680 to Hilfiker et al. and 5,190,413 to Carey were disclosed by the Examiner during the prosecution of parent application No. 10/370,637.

Japanese Patent No. 91-107521/15 discloses a process for reinforcing an earthen bank. L-shaped frames and vegetation mat are laid in succession on overlapping links of net. Each successive structure is back-filled to build the wall to its full height.

UK Patent No. 2059484 to Pickering discloses a temporary retaining system for an excavation. Tendons are inserted into the earthen wall which support the upper and lower edges of adjacent mesh sheets. The mesh sheets are supported to prevent material from falling from the wall space into the excavation.

Japanese Patent No. 05033346 A to Masuda was cited by the Examiner in a related application U.S. Serial No. 10/213,739.

## CONCLUSION

The Applicant respectfully submits that the attached references, taken alone or in combination, neither anticipate nor render obvious the present invention. Consideration of the foregoing in relation to the pending application is respectfully requested. If there is any matter which could be expedited by consultation with the Applicant's attorney, such would be welcome. The Applicant's attorney can normally be reached at the telephone number below.

Signed at Bellingham, County of Whatcom, State of Washington this March 31, 2004.

Respectfully submitted,

STEVEN V. RUEL

By Michael R. Schacht

Michael R. Schacht, Reg. No. 33,550
Schacht Law Office, Inc.
2801 Meridian Street, Suite 202
Bellingham, WA 98225-2400
Tel: (360) 647-0400
Fax: (360) 647-0412

CERTIFICATE OF MAILING
37 C.F.R. §1.8

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service as first class mail in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313, on the date shown below.

Signature: Gloria Smithey

Print Name: Gloria Smithey

Date: March 31, 2004

Please type a plus sign (+) inside this box ---> [+]

PTO/SB/08A (08-00)
Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

OIPE JC60 APR 05 2004 PATENT & TRADEMARK OFFICE

Substitute for form 1449B/PTO

# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

| Sheet | 1 | of | 3 |
|---|---|---|---|

| Complete if Known | |
|---|---|
| Application Number | 10/781,967 |
| Filing Date | 02/18/2004 |
| First Named Inventor | Steven V. Ruel |
| Group Art Unit | 3637 |
| Examiner Name | |
| Attorney Docket Number | P214523 |

## U.S. PATENT DOCUMENTS

| Examiner Initials* | Cite No.[2] | U.S. Patent Document Number | Kind Code[2] | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
|---|---|---|---|---|---|---|
| | | 4,324,508 | | Hilfiker et al. | 04/1982 | |
| | | 4,329,089 | | Hilfiker et al. | 05/1982 | |
| | | 5,494,379 | | Anderson et al. | 02/1996 | |
| | | 4,505,621 | | Hilfiker et al. | 03/1985 | |
| | | 4,616,959 | | Hilfiker | 10/1986 | |
| | | 4,661,023 | | Hilfiker | 04/1987 | |
| | | 5,484,235 | | Hilfiker | 01/1996 | |
| | | 4,856,939 | | Hilfiker | 08/1989 | |
| | | 4,260,296 | | Hilfiker | 04/1981 | |
| | | 4,266,890 | | Hilfiker | 05/1981 | |
| | | 3,992,864 | | Hilfiker | 12/1975 | |
| | | 4,343,572 | | Hilfiker et al. | 08/1982 | |
| | | 4,643,618 | | Hilfiker et al. | 02/1987 | |
| | | 4,391,557 | | Hilfiker et al. | 07/1983 | |
| | | 4,815,897 | | Risi et al. | 03/28/1989 | |
| | | 5,492,438 | | Hilfiker | 02/1996 | |
| | | 4,993,879 | | Hilfiker | 02/1991 | |
| | | 4,929,125 | | Hilfiker | 05/1990 | |
| | | 4,834,584 | | Hilfiker | 05/1989 | |
| | | 4,154,554 | | Hilfiker | 05/1979 | |

## FOREIGN PATENT DOCUMENTS

| | Cite No.[1] | Foreign Patent Document Office[3] | Number | Kind Code[5] (if known) | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T[6] |
|---|---|---|---|---|---|---|---|---|
| | | | 91-107521/15 Japan | | Mitsui Sekika Sanshi | 03/1991 | | |
| | | | 2059484 UK | | Pickering | 04/1981 | | |
| | | | JP 05033346 A | | Masuda, Jukio | 02/1993 | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

| Examiner Signature | | Date Considered | |
|---|---|---|---|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Unique citation designation number 2 See attached Kinds of U.S. Patent Documents 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3) 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible 6 Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box ---> [+]

PTO/SB/08A (08-00)
Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

OIPE
APR 05 2004
PATENT & TRADEMARK OFFICE
TC600

Substitute for form 1449B/PTO

# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 2 of 3

| Complete if Known | |
|---|---|
| Application Number | 10/781,967 |
| Filing Date | 02/18/2004 |
| First Named Inventor | Steven V. Ruel |
| Group Art Unit | 3637 |
| Examiner Name | |
| Attorney Docket Number | P214523 |

## U.S. PATENT DOCUMENTS

| Examiner Initials* | Cite No.[2] | U.S. Patent Document Number | Kind Code[2] | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
|---|---|---|---|---|---|---|
| | | 4,449,857 | | Davis | 05/1984 | |
| | | 5,259,704 | | Orgorchock | 11/1993 | |
| | | 4,952,098 | | Grayson et al. | 08/28/1990 | |
| | | 4,961,673 | | Pagano et al. | 10/09/1990 | |
| | | 5,028,172 | | Wilson et al. | 07/02/1991 | |
| | | 5,044,833 | | Wilfiker[sic] | 09/03/1991 | |
| | | 5,076,735 | | Hilfiker | 12/1991 | |
| | | 4,992,005 | | Hilfiker | 02/1991 | |
| | | 4,117,686 | | Hilfiker | 10/1978 | |
| | | 4,068,482 | | Hilfiker | 01/1978 | |
| | | 5,647,695 | | Hilfiker et al. | 07/1997 | |
| | | 4,529,174 | | Pickett | 07/1985 | |
| | | 4,684,287 | | Wojciechowdki | 08/1987 | |
| | | 5,531,547 | | Shimada | 07/1996 | |
| | | 5,158,399 | | Flores | 10/27/1992 | |
| | | 5,064,313 | | Risi et al. | 11/12/1991 | |
| | | 4,824,293 | | Brown et al. | 04/1989 | |
| | | 5,642,968 | | Anderson et al. | 07/01/1997 | |
| | | 4,407,611 | | Murrray et al. | 10/04/1983 | |
| | | 5,722,799 | | Hilfiker | 03/1998 | |

## FOREIGN PATENT DOCUMENTS

| | Cite No.[1] | Foreign Patent Document Office[3] | Number | Kind Code[5] (if known) | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T[6] |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

| Examiner Signature | | Date Considered | |
|---|---|---|---|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Unique citation designation number 2 See attached Kinds of U.S. Patent Documents 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3) 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible 6 Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box ---> [+]

PTO/SB/08A (08-00)
Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

OIPE
APR 05 2004
JC60
PATENT & TRADEMARK OFFICE

Substitute for form 1449B/PTO

# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 3 of 3

| Complete if Known | |
|---|---|
| Application Number | 10/781,967 |
| Filing Date | 02/18/2004 |
| First Named Inventor | Steven V. Ruel |
| Group Art Unit | 3637 |
| Examiner Name | |
| Attorney Docket Number | P214523 |

## U.S. PATENT DOCUMENTS

| Examiner Initials* | Cite No.[2] | U.S. Patent Document Number | Kind Code[2] | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
|---|---|---|---|---|---|---|
| | | 5,511,910 | | Scales | 04/1996 | |
| | | 5,622,455 | | Anderson et al. | 04/22/1997 | |
| | | 6,086,288 | | Ruel et al. | 07/11/2000 | |
| | | 6,050,748 | | Anderson et al. | 04/2000 | |
| | | 5,671,582 | | Reay | 09/1997 | |
| | | 979,285 | | Gilligan | 12/1910 | |
| | | 3,631,682 | | Hilfiker et al. | 01/04/1972 | |
| | | 5,564,865 | | Jansson, Jan E. | 10/1996 | |
| | | 5,820,305 | | Taylor et al. | 10/1998 | |
| | | 6,402,435 | | Lewis, Cyrrus Gregory | 06/2002 | |
| | | 6,113,317 | | Myers, Clinton Charles | 09/2000 | |
| | | 5,017,050 | | Jaecklin, Felix P. | 05/1991 | |
| | | 5,190,413 | | Carey | 03/1993 | |
| | | 5,749,680 | | Hilfiker et al. | 05/1998 | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

## FOREIGN PATENT DOCUMENTS

| | Cite No.[1] | Foreign Patent Document Office[3] | Number | Kind Code[5] (if known) | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T[6] |
|---|---|---|---|---|---|---|---|---|
| | | | 91-107521/15 Japan | | Mitsui Sekika Sanshi | 03/1991 | | |
| | | | 2059484 UK | | Pickering | 04/1981 | | |
| | | | JP 05033346 A | | Masuda, Jukio | 02/1993 | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

| Examiner Signature | | Date Considered | |
|---|---|---|---|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Unique citation designation number 2 See attached Kinds of U.S. Patent Documents 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3) 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible 6 Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.